

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF SOUTH CAROLINA**

IN RE: AQUEOUS FILM-FORMING FOAMS PRODUCTS  
LIABILITY LITIGATION

MDL No.  
2:18-mn-2873-RMG

Orleans Southwest Union Elementary School District,

*Plaintiff,*

-vs -

THE 3M COMPANY, f/k/a Minnesota Mining and  
Manufacturing Co., AGC CHEMICALS AMERICAS INC.,  
AMEREX CORPORATION, ARKEMA INC.,  
ARCHROMA U.S. INC., BASF CORPORATION,  
individually and as successor in interest to Ciba Inc.,  
BUCKEYE FIRE EQUIPMENT COMPANY, CARRIER  
FIRE & SECURITY AMERICAS CORPORATION, f/k/a  
UTC Fire & Security Americas Corporation, CARRIER  
FIRE & SECURITY CORPORATION, f/k/a UTC Fire &  
Security Corporation, CARRIER GLOBAL  
CORPORATION, CHEMDESIGN PRODUCTS INC.,  
CHEMGUARD INC., CHEMICALS, INC., CLARIANT  
CORPORATION, individually and as successor in interest to  
Sandoz Chemical Corporation, CORTEVA, INC.,  
individually and as successor in interest to DuPont Chemical  
Solutions Enterprise, DEEPWATER CHEMICALS, INC.,  
DUPONT DE NEMOURS INC., individually and as  
successor in interest to DuPont Chemical Solutions  
Enterprise, DYNAX CORPORATION, E. I. DUPONT DE  
NEMOURS AND COMPANY, individually and as  
successor in interest to DuPont Chemical Solutions  
Enterprise, NATION FORD CHEMICAL COMPANY,  
NATIONAL FOAM, INC., THE CHEMOURS COMPANY,  
individually and as successor in interest to DuPont Chemical  
Solutions Enterprise, THE CHEMOURS COMPANY FC,  
LLC, individually and as successor in interest to DuPont  
Chemical Solutions Enterprise, TYCO FIRE PRODUCTS,  
LP, individually and as successor in interest to The Ansul  
Company, and JOHN DOE DEFENDANTS 1-20,

*Defendants.*

2:23-cv-02408-RMG

**COMPLAINT**

**Jury Trial Demanded**



## **COMPLAINT AND DEMAND FOR JURY TRIAL**

Plaintiff ORLEANS SOUTHWEST UNION ELEMENTARY SCHOOL DISTRICT (“Plaintiff”), by and through its undersigned counsel, hereby files this Complaint against Defendants, 3M COMPANY, f/k/a Minnesota Mining and Manufacturing Co., AGC CHEMICALS AMERICAS INC., AMEREX CORPORATION, ARKEMA INC., ARCHROMA U.S. INC., BASF CORPORATION, BUCKEYE FIRE EQUIPMENT COMPANY, CARRIER FIRE & SECURITY AMERICAS CORPORATION, CARRIER FIRE & SECURITY CORPORATION, CARRIER GLOBAL CORPORATION, CHEMDESIGN PRODUCTS INC., CHEMGUARD INC., CHEMICALS, INC., CLARIANT CORPORATION, CORTEVA, INC., DEEPWATER CHEMICALS, INC., DUPONT DE NEMOURS INC., DYNAX CORPORATION, E. I. DUPONT DE NEMOURS AND COMPANY, NATION FORD CHEMICAL COMPANY, NATIONAL FOAM, INC., THE CHEMOURS COMPANY, THE CHEMOURS COMPANY FC, LLC, and TYCO FIRE PRODUCTS, LP, and DOE DEFENDANTS 1-20, fictitious names whose present identifies are unknown (collectively “Defendants”) and alleges, upon information and belief, as follows:

### **INTRODUCTION**

1. This action arises from the foreseeable contamination of groundwater by the use of aqueous film-forming foam (“AFFF”) products that contained per- and poly-fluoroalkyl substances (“PFAS”), including perfluorooctane sulfonate (“PFOS”) and perfluorooctanoic acid (“PFOA”).

2. PFOS and PFOA are fluorosurfactants that repel oil, grease, and water. PFOS, PFOA, and/or their chemical precursors, are or were components of AFFF products, which are firefighting suppressant agents used in training and firefighting activities for fighting Class B fires.

Class B fires include fires involving hydrocarbon fuels such as petroleum or other flammable liquids.

3. PFOS and PFOA are mobile, persist indefinitely in the environment, bioaccumulate in individual organisms and humans, and biomagnify up the food chain. PFOS and PFOA are also associated with multiple and significant adverse health effects in humans, including but not limited to kidney cancer, testicular cancer, high cholesterol, thyroid disease, ulcerative colitis, and pregnancy-induced hypertension.

4. At various times from the 1950s through today, Defendants designed, manufactured, marketed, distributed, and/or sold AFFF products containing PFOS, PFOA, and/or their chemical precursors, and/or designed, manufactured, marketed, distributed, and/or sold the fluorosurfactants and/or poly- and perfluorinated chemicals contained in AFFF (collectively, “AFFF/Component Products”).

5. Defendants designed, manufactured, marketed, distributed, and/or sold AFFF/Component Products despite knowing that PFAS are toxic, persist indefinitely, and would be routinely released into the environment during fire protection, training, and response activities, even when used as directed and intended by Defendants.

6. Since its creation in the 1960s, AFFF designed, manufactured, marketed, distributed, and/or sold by Defendants, and/or that contained fluorosurfactants and/or PFCs designed, manufactured, marketed, distributed, and/or sold by Defendants, was sold to fire training facilities and fire departments in the area near Plaintiff’s water system, which used it as directed and intended by Defendants, and subsequently released it into the environment during fire protection, training, and response activities, resulting in widespread PFAS contamination.

7. Plaintiff is the owner and operator of a public water system located on Woodbury Elementary School at 63 Valley Lake Rd, Woodbury, VT 05681, and serves approximately 100 people between the Woodbury Elementary School and the Woodbury Community Library.

8. Plaintiff's system draws the drinking water it provides to customers from 1 groundwater well.

9. Plaintiff has detected PFAS in its groundwater well.

10. On information and belief, the PFAS contamination described above is a direct and proximate result of fire protection, training, and response activities in the area near Plaintiff's water system, resulting in the migration of PFAS into Plaintiff's water supply.

11. In order to ensure that it can continue to provide clean and safe water to residences, Plaintiff has and will continue to take actions to address the above contamination of its property and its potable water supply caused by the Defendants.

12. Such actions include but are not limited to additional testing and monitoring for PFAS; planning, designing, purchasing, installing, and maintaining water filtration systems to remove these chemicals; infrastructure modifications; contingency planning; and community outreach.

13. Due to the persistent and long-term nature of PFAS contamination, Plaintiff is expected to suffer damages and incur the costs associated with these and other ongoing necessary remedial actions for many years to come.

14. Through this action, Plaintiff seeks compensatory damages for the harm done to its property and the costs associated with investigating, remediating, and monitoring its drinking water supplies contaminated with PFAS due to the use of AFFF in the area near Plaintiff's water system.

### **JURISDICTION AND VENUE**

15. Pursuant to this Court's Case Management Order No. 3, this Complaint is filed as an original action in the United States District Court for the District of South Carolina.

16. This Court has subject matter jurisdiction over the Defendants pursuant to 28 U.S.C. § 1332(a), in that this action seeks monetary relief in excess of the sum or value of \$ 75,000, exclusive of interest, and there is complete diversity between the parti.

17. Plaintiff is a citizen of the State of Vermont and complete diversity of citizenship exists between Plaintiff and Defendants.

18. Pursuant to 28 U.S.C. § 1391, Plaintiff's Home Venue is the United States District Court for the District of Vermont.

19. This Court has personal jurisdiction over Defendants by virtue of each Defendants' regular and systematic contacts with Vermont, including, among other things, purposefully marketing, selling and/or distributing their AFFF/Component Products to and within Vermont and because they have the requisite minimum contacts with Vermont necessary to constitutionally permit the Court to exercise jurisdiction over them consistent with traditional notions of fair play and substantial justice.

### **PARTIES**

#### **A. Plaintiff**

20. Plaintiff is a political subdivision organized under the laws of the State of Vermont, with its principal place of business located at Hardwick, VT 05843.

#### **B. Defendants**

21. The term "Defendants" refers to all Defendants named herein jointly and severally.

i. The AFFF Defendants

22. The term “**AFFF Defendants**” refers collectively to Defendants 3M Company, Amerex Corporation, Buckeye Fire Equipment Company, Carrier Fire & Security Americas Corporation, Carrier Fire & Security Corporation, Carrier Global Corporation, Chemguard Inc., National Foam, Inc., and Tyco Fire Products L.P.

23. **Defendant The 3M Company f/k/a Minnesota Mining and Manufacturing Co. (“3M”)** is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 3M Center, St. Paul, Minnesota 55144-1000.

24. Beginning before 1970 and until at least 2002, 3M designed, manufactured, marketed, distributed, and sold AFFF containing PFAS, including but not limited to PFOA and PFOS.

25. **Defendant Amerex Corporation (“Amerex”)** is a corporation organized and existing under the laws of the State of Alabama, with its principal place of business located at 7595 Gadsden Highway, Trussville, AL 35173.

26. Amerex is a manufacturer of firefighting products. Beginning in 1971, it was a manufacturer of hand portable and wheeled extinguishers for commercial and industrial applications.

27. In 2011, Amerex acquired Solberg Scandinavian AS, one of the largest manufacturers of AFFF products in Europe.

28. On information and belief, beginning in 2011, Amerex designed, manufactured, marketed distributed, and sold AFFF containing PFAS, including but not limited to PFOA and PFOS.

29. **Defendant Tyco Fire Products LP (“Tyco”)** is a limited partnership organized under the laws of the State of Delaware, with its principal place of business located at One Stanton Street, Marinette, Wisconsin 54143-2542.

30. Tyco is the successor in interest of The Ansul Company (“Ansul”), having acquired Ansul in 1990.

31. Beginning in or around 1975, Ansul designed, manufactured, marketed, distributed, and sold AFFF containing PFAS, including but not limited to PFOA and PFOS.

32. After Tyco acquired Ansul in 1990, Tyco/Ansul continued to design, manufacture, market, distribute, and sell AFFF products containing PFAS, including but not limited to PFOA and PFOS.

33. **Defendant Chemguard, Inc. (“Chemguard”)** is a corporation organized under the laws of the State of Texas, with its principal place of business located at One Stanton Street, Marinette, Wisconsin 54143.

34. On information and belief, Chemguard designed, manufactured, marketed, distributed, and sold AFFF products containing PFAS, including but not limited to PFOA and PFOS.

35. On information and belief, Chemguard was acquired by Tyco International Ltd. in 2011.

36. **Defendant Buckeye Fire Equipment Company (“Buckeye”)** is a corporation organized under the laws of the State of Ohio, with its principal place of business located at 110 Kings Road, Kings Mountain, North Carolina 28086.

37. On information and belief, Buckeye designed, manufactured, marketed, distributed, and sold AFFF products containing PFAS, including but not limited to PFOA and PFOS.



38. **Defendant National Foam, Inc. (“National Foam”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 141 Junny Road, Angier, North Carolina 27501.

39. Beginning in or around 1973, National Foam designed, manufactured, marketed, distributed, and sold AFFF containing PFAS, including but not limited to PFOA and PFOS.

40. On information and belief, National Foam currently manufactures the Angus brand of AFFF products and is a subsidiary of Angus International Safety Group.

41. On information and belief, National Foam merged with Chubb Fire Ltd. to form Chubb National Foam, Inc. in or around 1988.

42. On information and belief, Chubb is or has been composed of different subsidiaries and/or divisions, including but not limited to, Chubb Fire & Security Ltd., Chubb Security, PLC, Red Hawk Fire & Security, LLC, and/or Chubb National Foam, Inc. (collectively referred to as “Chubb”).

43. On information and belief, Chubb was acquired by Williams Holdings in 1997.

44. On information and belief, Angus Fire Armour Corporation had previously been acquired by Williams Holdings in 1994.

45. On information and belief, Williams Holdings was demerged into Chubb and Kidde P.L.C. in or around 2000.

46. On information and belief, when Williams Holdings was demerged, Kidde P.L.C. became the successor in interest to National Foam System, Inc. and Angus Fire Armour Corporation.

47. On information and belief, Kidde P.L.C. was acquired by United Technologies Corporation in or around 2005.

48. On information and belief, Angus Fire Armour Corporation and National Foam separated from United Technologies Corporation in or around 2013.

49. **Defendant Carrier Fire & Security Americas Corporation (“Carrier F&S Americas”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business at 13995 Pasteur Blvd, Palm Beach Gardens, Florida 33418-7231.

50. On information and belief, Kidde-Fenwal, Inc. was an operating subsidiary of Kidde P.L.C. and manufactured AFFF following Kidde P.L.C.’s acquisition by United Technologies Corporation. Kidde-Fenwal, Inc. was also the entity that divested the AFFF business unit now operated by National Foam in 2013.

51. On May 14, 2023, Kidde-Fenwal, Inc. filed a voluntary petition for relief under chapter 11 of title 11 of the United States Bankruptcy Code, 11 U.S.C. §§ 101—1532, in the United States Bankruptcy Court for the District of Delaware.

52. In its voluntary petition, Kidde-Fenwal, Inc. identified Kidde Fire Protection, Inc., a holding company organized under the laws of the State of Delaware, as its parent company and the owner of 100% of its common stock.

53. On information and belief, Kidde Fire Protection, Inc. is a wholly owned subsidiary of Carrier F&S Americas, making Carrier F&S Americas the indirect owner of Kidde-Fenwal, Inc. via a holding company.

54. **Defendant Carrier Fire & Security Corporation (“Carrier F&S”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business at 13995 Pasteur Blvd, Palm Beach Gardens, Florida 33418-7231.

55. On information and belief, Carrier F&S Americas is a wholly owned subsidiary of Kidde US Holdings Inc., a holding company organized under the laws of the State of Delaware.

56. On information and belief, Kidde US Holdings Inc. is a wholly owned subsidiary of Carrier F&S, making Carrier F&S the indirect owner of Carrier F&S Americas via a holding company.

57. **Defendant Carrier Global Corporation (“Carrier Global”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business at 13995 Pasteur Boulevard, Palm Beach Gardens, Florida 33418.

58. On information and belief, Carrier Global was formed in March 2020 when United Technologies Corporation spun off its fire and security business before it merged with Raytheon Company in April 2020.

59. On information and belief, UTC Fire & Security Americas Corporation and UTC Fire & Security Corporation became subsidiaries of Carrier Global when United Technologies Corporation spun off its fire and security business in March 2020.

60. In September 2020, UTC Fire & Security Americas Corporation and UTC Fire & Security Corporation changed their names to Carrier Fire & Security Americas Corporation and Carrier Fire & Security Corporation, respectively.

61. On information and belief, Carrier Global became the ultimate corporate parent and owner of Kidde-Fenwal, Inc., Kidde Fire Protection, Inc., Carrier F&S Americas, Kidde US Holdings, Inc., and Carrier F&S when United Technologies Corporation spun off its fire and security business in March 2020.

62. On information and belief, Kidde-Fenwal became a subsidiary of Carrier when United Technologies Corporation spun off its fire and security business in March 2020.

63. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and sold AFFF products containing PFOS, PFOA, and/or their chemical

precursors that were stored, handled, used, trained with, tested equipment with, otherwise discharged, and/or disposed in the vicinity of Plaintiff's drinking water supply.

ii. The Fluorosurfactant Defendants

64. The term “**Fluorosurfactant Defendants**” refers collectively to Defendants 3M, , Arkema Inc., BASF Corporation, ChemDesign Products Incorporated, Chemguard Inc., Deepwater Chemicals, Inc., E.I. DuPont de Nemours and Company, The Chemours Company, The Chemours Company FC, LLC, DuPont de Nemours Inc., and Dynax Corporation.

65. **Defendant Arkema Inc.** is a corporation organized and existing under the laws of Pennsylvania, with its principal place of business at 900 First Avenue, King of Prussia, PA 19406.

66. Arkema Inc. develops specialty chemicals and polymers.

67. Arkema, Inc. is an operating subsidiary of Arkema France, S.A.

68. On information and belief, Arkema Inc. designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

69. **Defendant BASF Corporation (“BASF”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 100 Park Avenue, Florham Park, New Jersey 07932.

70. On information and belief, BASF is the successor-in-interest to Ciba. Inc. (f/k/a Ciba Specialty Chemicals Corporation).

71. On information and belief, Ciba Inc. designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

72. **Defendant ChemDesign Products Inc. (“ChemDesign”)** is a corporation organized under the laws of Delaware, with its principal place of business located at 2 Stanton Street, Marinette, WI, 54143.

73. On information and belief, ChemDesign designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

74. **Defendant Deepwater Chemicals, Inc. (“Deepwater”)** is a corporation organized under the laws of Delaware, with its principal place of business located at 196122 E County Road 40, Woodward, OK, 73801.

75. On information and belief, Deepwater Chemicals designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

76. **Defendant Dynax Corporation (“Dynax”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 103 Fairview Park Drive, Elmsford, New York 10523.

77. On information and belief, Dynax entered into the AFFF market on or about 1991 and quickly became a leading global producer of fluorosurfactants and fluorochemical stabilizers containing PFOS, PFOA, and/or their chemical precursors.

78. On information and belief, Dynax designed, manufactured, marketed, distributed, and sold fluorosurfactants and fluorochemical stabilizers containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

79. **Defendant E.I. du Pont de Nemours & Company (“DuPont”)** is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 974 Centre Road, Wilmington, Delaware 19805.

80. **Defendant The Chemours Company (“Chemours Co.”)** is a limited liability company organized under the laws of the State of Delaware, with its principal place of business located at 1007 Market Street, P.O. Box 2047, Wilmington, Delaware, 19899.

81. In 2015, DuPont spun off its performance chemicals business to Chemours Co., along with vast environmental liabilities which Chemours Co. assumed, including those related to PFOS and PFOA and fluorosurfactants. On information and belief, Chemours Co. has supplied fluorosurfactants containing PFOS and PFOA, and/or their chemical precursors to manufacturers of AFFF products.

82. On information and belief, Chemours Co. was incorporated as a subsidiary of DuPont as of April 30, 2015. From that time until July 2015, Chemours Co. was a wholly owned subsidiary of DuPont.

83. In July 2015, DuPont spun off Chemours Co. and transferred to Chemours Co. its “performance chemicals” business line, which includes its fluoroproducts business, distributing shares of Chemours Co. stock to DuPont stockholders, and Chemours Co. has since been an independent, publicly traded company.

84. **Defendant The Chemours Company FC, LLC (“Chemours FC”)** is a limited liability company organized under the laws of the State of Delaware, with its principal place of business located at 1007 Market Street, Wilmington, Delaware, 19899.

85. **Defendant Corteva, Inc. (“Corteva”)** is a corporation organized and existing under the laws of Delaware, with its principal place of business at 974 Centre Rd., Wilmington, Delaware 19805.

86. **Defendant Dupont de Nemours Inc. f/k/a DowDuPont, Inc. (“Dupont de Nemours Inc.”)** is a corporation organized and existing under the laws of Delaware, with its principal place of business at 974 Centre Road, Wilmington, Delaware 19805 and 2211 H.H. Dow Way, Midland, Michigan 48674.

87. On June 1, 2019, DowDuPont separated its agriculture business through the spin-off of Corteva.

88. Corteva was initially formed in February 2018. From that time until June 1, 2019, Corteva was a wholly owned subsidiary of DowDuPont.

89. On June 1, 2019, DowDuPont distributed to DowDuPont stockholders all issued and outstanding shares of Corteva common stock by way of a pro-rata dividend. Following that distribution, Corteva became the direct parent of E. I. Du Pont de Nemours & Co.

90. Corteva holds certain DowDuPont assets and liabilities, including DowDuPont’s agriculture and nutritional businesses.

91. On June 1, 2019, DowDuPont, the surviving entity after the spin-off of Corteva and of another entity known as Dow, Inc., changed its name to DuPont de Nemours, Inc., to be known as DuPont (“New DuPont”). New DuPont retained assets in the specialty products business lines following the above-described spin-offs, as well as the balance of the financial assets and liabilities of E.I DuPont not assumed by Corteva.

92. Defendants E. I. Du Pont de Nemours and Company; The Chemours Company; The Chemours Company FC, LLC; Corteva, Inc.; and DuPont de Nemours, Inc. are collectively referred to as “DuPont” or the “DuPont Defendants” throughout this Complaint.

93. On information and belief, DuPont designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

94. On information and belief, 3M and Chemguard also designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products.

95. On information and belief, the Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF products that were stored, handled, used, trained with, tested equipment with, otherwise discharged, and/or disposed in the vicinity of Plaintiff’s drinking water supply.

iii. The PFC Defendants

96. The term “**PFC Defendants**” refers collectively to 3M, AGC, Inc., AGC Chemicals Americas Inc., Archroma U.S. Inc., ChemDesign Products Inc., Chemicals, Inc., Clariant Corporation, Deepwater Chemicals, Inc., E. I. DuPont de Nemours and Company, The Chemours Company, The Chemours Company FC, LLC, Corteva, Inc., DuPont de Nemours Inc., and Nation Ford Chemical Company.

97. **Defendant AGC, Inc. (“AGC”)**, f/k/a Asahi Glass Co., is a corporation organized under the laws of Japan that does business throughout the United State and has its principal place of business at 1-5-1, Marunouchi, Chiyoda-ku, Tokyo 100-8405 Japan.



98. On information and belief, AGC was founded more than a hundred years ago and was the first Japanese producer of sheet glass.

99. On information and belief, AGC expanded its operations in the 1960s by developing a fluorochemical business segment that sold products such as the water and oil repellent agents AsahiGuard and fluoropolymer film F-CLEAN.

100. On information and belief, AGC designed, manufactured, marketed, distributed, and sold fluorochemicals containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

101. **Defendant AGC Chemicals Americas, Inc. (“AGCCA”)** is a corporation organized and existing under the laws of Delaware, having its principal place of business at 55 East Uwchlan Avenue, Suite 201, Exton, PA 19341.

102. On information and belief, AGCCA was formed in 2004 and is a subsidiary of AGC, Inc.

103. AGCCA manufactures specialty chemicals. It offers glass, electronic displays, and chemical products, including resins, water and oil repellants, greenhouse films, silica additives, and various fluorointermediates.

104. On information and belief, AGCCA designed, manufactured, marketed, distributed, and sold PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

105. **Defendant Archroma U.S., Inc. (“Archroma”)** is a corporation organized and existing under the laws of Delaware, with its a principal place of business at 5435 77 Center Drive, Charlotte, North Carolina 28217.

106. On information and belief, Archroma was formed in 2013 when Clariant Corporation divested its textile chemicals, paper specialties, and emulsions business to SK Capital Partners.

107. On information and belief, Archroma designed, manufactured, marketed, distributed, and sold PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

108. **Defendant Chemicals, Inc. (“Chemicals, Inc.”)** is a corporation organized and existing under the laws of Texas, with its principal place of business located at 12321 Hatcherville, Baytown, TX 77520.

109. On information and belief, Chemicals, Inc. supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

110. **Defendant Clariant Corporation (“Clariant”)** is a corporation organized and existing under the laws of New York, with its principal place of business at 4000 Monroe Road, Charlotte, North Carolina 28205.

111. On information and belief, Clariant is the successor in interest to the specialty chemicals business of Sandoz Chemical Corporation (“Sandoz”). On information and belief, Sandoz spun off its specialty chemicals business to form Clariant in 1995.

112. On information and belief, Clariant supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

113. **Defendant Nation Ford Chemical Co. (“Nation Ford”)** is a corporation organized and existing under the laws of South Carolina, with its principal place of business located at 2300 Banks Street, Fort Mill, SC 29715.

114. On information and belief, Nation Ford supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

115. On information and belief, 3M, ChemDesign, Deepwater Chemicals, and DuPont also supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

116. On information and belief, the PFC Defendants supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products that were stored, handled, used, trained with, tested equipment with, otherwise discharged, and/or disposed in the vicinity of Plaintiff's drinking water supply.

iv. Doe Defendants 1-20

117. Doe Defendants 1-20 are unidentified entities or persons whose names are presently unknown and whose actions, activities, omissions (a) may have permitted, caused and/or contributed to the contamination of Plaintiff's water sources or supply wells; or (b) may be vicariously responsible for entities or persons who permitted, caused and/or contributed to the contamination of Plaintiff's water sources or supply wells; or (c) may be successors in interest to entities or persons who permitted, caused and/or permitted , contributed to the contamination of Plaintiff's water sources or supply wells. After reasonable search and investigation to ascertain the Doe Defendants actual names, the Doe Defendants' actual identities are unknown to Plaintiff as they are not linked with any of the Defendants on any public source.

118. The Doe Defendants 1-20 either in their own capacity or through a party they are liable for: (1) designed, manufactured, marketed, distributed, and/or sold AFFF products containing PFOS, PFOA, and/or their chemical precursors, and/or designed, manufactured, marketed, distributed, and/or sold the fluorosurfactants and/or PFCs contained in

AFFF/Component Products; or (2) used, handled, transported, stored, discharged, disposed of, designed, manufactured, marketed, distributed, and/or sold PFOS, PFOA, and/or their chemical precursors, or other non-AFFF products containing PFOS, PFOA, and/or their chemical precursors; or (3) failed to timely perform necessary and reasonable response and remedial measures to releases of PFOS, PFOA, and/or their chemical precursors, or other non-AFFF products containing PFOS, PFOA, and/or their chemical precursors in to the environment in which Plaintiff's water supplies and well exist.

119. All Defendants, at all times material herein, acted by and through their respective agents, servants, officers and employees, actual or ostensible, who then and there were acting within the course and scope of their actual or apparent agency, authority or duties. Defendants are liable based on such activities, directly and vicariously.

120. Defendants represent all or substantially all of the market for AFFF/Component Products used in the vicinity of Plaintiff's drinking water supply.

### **FACTUAL ALLEGATIONS RELEVANT TO ALL CAUSES OF ACTION**

#### **A. PFOA and PFOS and Their Risk to Public Health**

121. PFAS are chemical compounds containing fluorine and carbon. These substances have been used for decades in the manufacture of, among other things, household and commercial products that resist heat, stains, oil, and water. These substances are not naturally occurring and must be manufactured.

122. The two most widely studied types of these substances are PFOA and PFOS.

123. PFOA and PFOS have unique properties that cause them to be: (i) mobile and persistent, meaning that they readily spread into the environment where they break down very slowly; (ii) bioaccumulative and biomagnifying, meaning that they tend to accumulate in

organisms and up the food chain; and (iii) toxic, meaning that they pose serious health risks to humans and animals.

124. PFOA and PFOS easily dissolve in water, and thus they are mobile and easily spread in the environment. PFOA and PFOS also readily contaminate soils and leach from the soil into groundwater, where they can travel significant distances.

125. PFOA and PFOS are characterized by the presence of multiple carbon-fluorine bonds, which are exceptionally strong and stable. As a result, PFOA and PFOS are thermally, chemically, and biologically stable. They resist degradation due to light, water, and biological processes.

126. Bioaccumulation occurs when an organism absorbs a substance at a rate faster than the rate at which the substance is lost by metabolism and excretion. Biomagnification occurs when the concentration of a substance in the tissues of organisms increases as the substance travels up the food chain.

127. PFOA and PFOS bioaccumulate/biomagnify in numerous ways. First, they are relatively stable once ingested, so that they bioaccumulate in individual organisms for significant periods of time. Because of this stability, any newly ingested PFOA and PFOS will be added to any PFOA and PFOS already present. In humans, PFOA and PFOS remain in the body for years.

128. PFOA and PFOS biomagnify up the food chain. This occurs, for example, when humans eat fish that have ingested PFOA and/or PFOS.

129. The chemical structure of PFOA and PFOS makes them resistant to breakdown or environmental degradation. As a result, they are persistent when released into the environment.

130. Exposure to PFAS is toxic and poses serious health risks to humans and animals.

131. PFAS are readily absorbed after consumption or inhalation and accumulate primarily in the bloodstream, kidney, and liver.

**B. Defendants' Manufacture and Sale of AFFF/Component Products**

132. AFFF is a type of water-based foam that was first developed in the 1960s to extinguish hydrocarbon fuel-based fires.

133. AFFF is a Class-B firefighting foam. It is mixed with water and used to extinguish fires that are difficult to fight, particularly those that involve petroleum or other flammable liquids.

134. AFFF is synthetically formed by combining fluorine-free hydrocarbon foaming agents with fluorosurfactants. When mixed with water, the resulting solution produces an aqueous film that spreads across the surface of hydrocarbon fuel. This film provides fire extinguishment and is the source of the designation aqueous film-forming foam.

135. Beginning in the 1960s, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold AFFF products that used fluorosurfactants containing either PFOS, PFOA, or the chemical precursors that degrade into PFOS and PFOA.

136. AFFF can be made without the fluorosurfactants that contain PFOA, PFOS, and/or their precursor chemicals. Fluorine-free firefighting foams, for instance, do not release PFOA, PFOS, and/or their precursor chemicals into the environment.

137. AFFF that contains fluorosurfactants, however, is better at extinguishing hydrocarbon fuel-based fires due to their surface-tension lowering properties, essentially smothering the fire and starving it of oxygen.

138. The fluorosurfactants used in 3M's AFFF products were manufactured by 3M's patented process of electrochemical fluorination ("ECF").

139. The fluorosurfactants used in other AFFF products sold by the AFFF Defendants were manufactured by the Fluorosurfactant Defendants through the process of telomerization.

140. The PFCs the Fluorosurfactant Defendants needed to manufacture those fluorosurfactants contained PFOS, PFOA, and/or their chemical precursors and were designed, manufactured, marketed, distributed and/or sold by the PFC Defendants.

141. On information and belief, the PFC and Fluorosurfactant Defendants were aware that the PFCs and fluorosurfactants they designed, manufactured, marketed, distributed, and/or sold would be used in the AFFF products designed, manufactured, marketed, distributed, and/or sold by the AFFF Defendants.

142. On information and belief, the PFC and Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and/or sold the PFC and/or fluorosurfactants contained in the AFFF products discharged into the environment during fire protection, training, and response activities conducted in the vicinity of Plaintiff's drinking water supply, resulting in widespread PFAS contamination.

143. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold the AFFF products discharged into the environment during fire protection, training, and response activities conducted in the vicinity of Plaintiff's drinking water supply, resulting in widespread PFAS contamination.

**C. Defendants' Knowledge of the Threats to Public Health and the Environment Posed by PFOS and PFOA**

144. On information and belief, by at least the 1970s 3M and DuPont knew or should have known that PFOA and PFOS are mobile and persistent, bioaccumulative and biomagnifying, and toxic.

145. On information and belief, 3M and DuPont concealed from the public and government agencies its knowledge of the threats to public health and the environment posed by PFOA and PFOS.

146. Some or all of the Defendants understood how stable the fluorinated surfactants used in AFFF are when released into the environment from their first sale to a customer, yet they failed to warn their customers or provide reasonable instruction on how to manage wastes generated from their products.

i. 1940s and 1950s: 3M, DuPont, and the Development of a Toxic Chemical Family

147. The development of this family of chemical compounds began with Defendant 3M in the 1940s. At that time, 3M's Central Research Laboratory was working with a scientist at Penn State University, Joseph H. Simons, who had developed and patented a process of preparing fluorine compounds through electrochemical fluorination ("ECF"). In 1945, 3M acquired Simons' ECF patents. It would be another three years before 3M's Central Research developed fluorinated compounds that could be used for commercial applications. During that time, 3M scientists continuously researched and created new fluorochemicals; in the words of one researcher, "[a]lmost every day we made a new molecule which had never been on the face of the earth before."<sup>1</sup>

148. From the early days of its fluorochemical research, 3M recognized the very characteristics that make PFAS persistent pollutants in the environment today. For example, Simons' 1948 patent for the ECF process, which was assigned to 3M, stated that the compounds produced through ECF are non-corrosive, and of little chemical reactivity, and do not react with any of the metals at ordinary temperatures and react only with the more chemically reactive metals such as sodium, at elevated temperatures.<sup>2</sup> The patent also stated that the fluorochemicals produced

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<sup>1</sup> Neil McKay, *A Chemical History of 3M: 1933-1990*, <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1365.pdf>

<sup>2</sup> Simons, J. H., Fluorination of Organic Compounds, U.S. Patent No. 2,447,717. August 24, 1948, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1005.pdf>.



by the ECF process do not react with other compounds or reagents due to the blanket of fluorine atoms surrounding the carbon skeleton of the molecule. 3M understood that the stability of the carbon-to-fluorine bonds prevented its fluorosurfactants from undergoing further chemical reactions or degrading under natural processes in the environment.<sup>3</sup>

149. 3M was also aware of the thermal stability of its fluorinated compounds prior to commercial production. Simons' ECF patent application states that the compounds produced by the ECF process were thermally stable at temperatures up to 750° C (1382° F). Additional research by 3M expanded its understanding of the thermal stability of fluorinated compounds.<sup>4</sup>

150. In 1949, 3M built the first manufacturing facility to expand ECF from laboratory research to commercial production, and it began to present its fluorochemical research in order to find potential uses and customers for the compounds it was manufacturing.

151. 3M soon found a customer: DuPont. In 1951, DuPont began purchasing a perfluorinated carboxylic acid (perfluorooctanoic acid or PFOA), for use in manufacturing a non-stick coating called Teflon.

152. Even then, 3M's research had already documented that PFAS accumulate in the blood of mice exposed to the chemicals in laboratory tests.<sup>5</sup> Also, a 1956 study by researchers at Stanford University found that PFAS bind to proteins in human blood.<sup>6</sup>

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<sup>3</sup> Simons, J. H., 1950. Fluorocarbons and Their Production. *Fluorine Chemistry*, 1(12): 401-422, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX3008.pdf>.

<sup>4</sup> Bryce, T. J., 1950. Fluorocarbons - Their Properties and Wartime Development. *Fluorine Chemistry*, 1(13): 423-462.

<sup>5</sup> 1950 3M test study results with Perfluorobutyric acid, *available at* [https://static.ewg.org/reports/2019/pfa-timeline/1950\\_Mice.pdf?\\_ga=2.21758526.426747500.1673645134-2012946541.1673645134](https://static.ewg.org/reports/2019/pfa-timeline/1950_Mice.pdf?_ga=2.21758526.426747500.1673645134-2012946541.1673645134).

<sup>6</sup> Perfluorooctanoic Acid Interactions with Human Serum Albumin, *available at* [https://static.ewg.org/reports/2019/pfa-timeline/1956\\_Stanford.pdf?\\_ga=2.59569645.1994765108.1678715813-813372143.1678715813](https://static.ewg.org/reports/2019/pfa-timeline/1956_Stanford.pdf?_ga=2.59569645.1994765108.1678715813-813372143.1678715813).

153. In 1964, a group of DuPont employees working in Teflon manufacturing became sick after their department was moved to a more enclosed workspace.<sup>7</sup> They experienced chills, fever, difficulty breathing, and a tightness in the chest—symptoms referred to variously as “polymer-fume fever,” “Teflon flu,” or simply, “the shakes.” Polymer-fume fever was first reported in medical literature in 1951.

ii. 1960s: AFFF’s Environmental Hazards Come Into Focus

154. By at least the end of the 1960s, additional research and testing performed by 3M and DuPont indicated that fluorosurfactants, including at least PFOA, because of their unique chemical structure, were resistant to environmental degradation and would persist in the environment essentially unaltered if allowed to enter the environment.

155. One 3M employee wrote in 1964, “This chemical stability also extends itself to all types of biological processes; there are no known biological organisms that are able to attack the carbon-fluorine bond in a fluorocarbon.”<sup>8</sup> Thus, 3M knew by the mid-1960s that its fluorosurfactants were immune to chemical and biological degradation in soils and groundwater.

156. 3M also knew by 1964 that fluorocarbon carboxylic acids and fluorocarbon sulfonic acids, when dissolved, dissociated to form highly stable perfluorocarboxylate and perfluorosulfonate ions. Later studies by 3M on the adsorption and mobility of FC-95 (the potassium salt of PFOS) and FC-143 (the ammonium salt of PFOA) in soils indicated very high solubility and very high mobility in soils for both compounds.<sup>9</sup>

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<sup>7</sup> Charles E. Lewis and Gerald R. Kerby, *An Epidemic of Polymer-Fume Fever*, 191 JAMA 375 (February 1, 1965).

<sup>8</sup> Bryce, H.G., *Industrial and Utilitarian Aspects of Fluorine Chemistry* (1964), *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX3022.pdf>.

<sup>9</sup> Technical Report Summary re : Adsorption of FC 95 and FC143 on Soil, Feb. 27, 1978, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1158.pdf>.

157. Also, in a 1965 study sponsored by DuPont where rats were fed a PFAS compound over a ninety-day period the rats had liver damage and an showed an increased size in the spleen.

158. Despite early warnings of the toxic, persistent, and bioaccumulative nature of PFOS and PFOA, these chemicals began to be used in a product that would be released in large quantities directly into the environment whenever used: firefighting foam.

159. AFFF was first developed in the 1960s as a result of the U.S. Navy's research into the use of fluorosurfactants in firefighting foam to extinguish fuel-based shipboard fires.

160. In 1969, the Navy promulgated a military standard or "MilSpec" requiring contractors to use "fluorocarbon surfactants" in firefighting foam products. Since then, the Navy has revised this MilSpec multiple times, but at no time did the Navy specify the specific fluorosurfactants to be used in AFFF. The AFFF MilSpec was a "performance specification," meaning that the product manufacturers were given great flexibility with respect to designing a product that would meet the military's performance requirements.

161. Firefighting foam can be made without the fluorosurfactants that contain PFOA, PFOS, and/or their precursor chemicals.

162. When the Navy first promulgated the AFFF MilSpec, hundreds of different fluorosurfactants had already been created.

163. Nonetheless, beginning in the 1960s, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold AFFF products that used fluorosurfactants containing either PFOS, PFOA, or the chemical precursors that degrade into PFOS and PFOA.

164. From the late 1960s to 2002, Defendant 3M manufactured and sold AFFF containing PFOS under the brand name "Light Water."

165. Because 3M held the patents on the ECF process, other AFFF Defendants utilized PFAS produced through a different process, called fluorotelomerization. These fluorotelomer AFFF formulations were produced beginning in the 1970s. Although they are not made with PFOA, they contain precursors—polyfluorinated compounds that are known to degrade to compounds that include PFOA.

166. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold the AFFF products discharged into the environment during fire protection, training, and response activities conducted in the vicinity of Plaintiff's drinking water supply, resulting in widespread PFAS contamination.

167. The AFFF Defendants treated their foam formulations as proprietary information and did not disclose the specific chemical ingredients of their formulations to government agencies or the public.

168. Some or all of the Defendants understood how stable the fluorinated surfactants used in AFFF are when released into the environment from their first sale to a customer, yet they failed to warn their customers or provide reasonable instruction on how to manage wastes generated from their products.

iii. 1970s -1980s: Defendants Deepening Knowledge of the Risks of PFOA and PFOS

169. By at least the 1970s, as Defendants expanded the market for AFFF formulations containing PFOA and PFOS, 3M and DuPont knew or should have known that PFOA and PFOS are mobile and persistent, bioaccumulative and biomagnifying, and toxic.

170. During the 1970s, 3M also learned that the fluorosurfactants used in AFFF accumulated in the human body and were “even more toxic” than previously believed.

171. An internal memo from 3M in 1971 states that “the thesis that there is ‘no natural sink’ for fluorocarbons obviously demands some attention.”<sup>10</sup> But if 3M did give this issue the attention demanded at this time, it did not share it with the public.

172. In 1975, two independent toxicologists, Dr. Warren Guy and Donald Taves, discovered that an unidentified fluorine compound had been found in human blood sampled from different blood banks. Dr. Guy contacted 3M to ask if it knew of “possible sources” of the chemicals.<sup>11</sup> 3M’s scientists concluded internally that the fluorine compounds resembled PFOS manufactured by 3M, but 3M did not share this conclusion with the independent toxicologists or anyone else outside of 3M.

173. 3M did, however, test the blood of its own workers in 1976, finding “up to 1000 times ‘normal’ amounts of organically bound fluorine in their blood.”<sup>12</sup>

174. By the mid-1970s, 3M and Ansul (and possibly other Defendants) had an intimate understanding of the persistent nature of PFCs. A 1976 study, for example, observed no biodegradation of FC-95, the potassium salt of PFOS; a result 3M characterized as “unsurprising” in light of the fact that “[b]iodegradation of FC 95 is improbable because it is completely fluorinated.”<sup>13</sup>

175. In 1977, Ansul, the AFFF manufacturer later acquired by Defendant Tyco, authored a report titled “Environmentally Improved AFFF,” which acknowledged that releasing AFFF into

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<sup>10</sup> Memorandum from H.G. Bryce to R.M. Adams re : Ecological Aspects of Fluorocarbons, Sept. 13, 1971, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1088.pdf>.

<sup>11</sup> Memorandum from G.H. Crawford to L.C. Krogh et al. re: Fluorocarbons in Human Blood Plasma, Aug. 20, 1975, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1118.pdf>.

<sup>12</sup> 3M Chronology – Fluorochemicals in Blood, Aug. 26, 1977, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1144.pdf>.

<sup>13</sup> Technical Report Summary, August 12, 1976 [3MA01252037].

the environment could pose potential negative impacts to groundwater quality.<sup>14</sup> Ansul wrote: “The purpose of this work is to explore the development of experimental AFFF formulations that would exhibit reduced impact on the environment while retaining certain fire suppression characteristic . . . improvements [to AFFF formulations] are desired in the environmental area, i.e., development of compositions that have a reduced impact on the environment without loss of fire suppression effectiveness.” Thus, Ansul knew by the mid-1970s that the environmental impact of AFFF needed to be reduced, yet there is no evidence that Ansul (or any other Defendant) ever pursued initiatives to do so.

176. A 1978 3M biodegradation study likewise reported that an “extensive study strongly suggest[ed]” one of its PFAS was “likely to persist in the environment for extended period unaltered by metabolic attack.”<sup>15</sup> A year later, a 3M study reported that one of its fluorosurfactants “was found to be completely resistant to biological test conditions,” and that it appeared waterways were the fluorosurfactant’s “environmental sink.”<sup>16</sup>

177. At the same time, several studies sponsored by 3M showed that the fluorosurfactants used in AFFF were even more toxic than previously believed. A study of subacute toxicity in rhesus monkeys, in which the monkeys were to be given doses of PFOS over ninety days, had to be redesigned and repeated “[b]ecause of unexpected early mortalities in all monkeys at all levels.”<sup>17</sup> None of the monkeys survived past twenty days. As a summary of the study stated,

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<sup>14</sup> Ansul Co., Final Report: Environmentally Improved AFFF, N00173-76-C-0295, Marinette, WI, Dec. 13, 1977, *available at* <https://apps.dtic.mil/dtic/tr/fulltext/u2/a050508.pdf>.

<sup>15</sup> Technical Report Summary re : Fate of Fluorochemicals in the Environment, Biodegradation Studies of Fluorocarbons - II, Jan. 1, 1978, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1153.pdf>.

<sup>16</sup> Technical Report Summary re : Fate of Fluorochemicals in the Environment, Biodegradation Studies of Fluorocarbons - III, July 19, 1978, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1179.pdf>.

<sup>17</sup> Ninety-Day Subacute Rhesus Monkey Toxicity Study, Dec. 18, 1978, *available at*

PFOS “proved to be considerably more toxic to monkeys than anticipated[.]” In addition, PFOA reduced the survival rate of fathead minnow fish eggs,<sup>18</sup> and PFOS and PFOA were shown to be toxic to rats.<sup>19</sup> As the summary documented observed, “[b]ecause of the apparent persistence of these fluorochemicals in the body, *the most important question remains possible long term effects.*”<sup>20</sup>

178. In 1979, 3M also completed a comprehensive biodegradation and toxicity study covering investigations between 1975 and 1978.<sup>21</sup> More than a decade after 3M began selling AFFF containing fluorosurfactants it wrote, “there has been a general lack of knowledge relative to the environmental impact of these chemicals.” The report ominously asked, “If these materials are not biodegradable, what is their fate in the environment?”<sup>22</sup>

179. In 1979, 3M and DuPont discussed 3M’s discovery of high levels of PFOS in the blood of its workers. Both companies came to the same conclusion that there: was “no reason” to

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<https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1191.pdf>; Aborted FC95 Monkey Study, Jan. 2, 1979, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1193.pdf>; FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary, *available at* [https://static.ewg.org/reports/2019/pfa-timeline/1977\\_Most%20Toxic.pdf?\\_ga=2.34744996.426747500.1673645134-2012946541.1673645134](https://static.ewg.org/reports/2019/pfa-timeline/1977_Most%20Toxic.pdf?_ga=2.34744996.426747500.1673645134-2012946541.1673645134).

<sup>18</sup> The Effects of Continuous Aqueous Exposure to 78.03 on Hatchability of Eggs and Growth and Survival of Fry of Fathead Minnow, June 1978, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1176.pdf>.

<sup>19</sup> Acute Oral Toxicity (LD<sub>50</sub>) Study in Rats (FC-143), May 5, 1978, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1170.pdf>; FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary, Mar. 20, 1979, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1199.pdf>.

<sup>20</sup> *Id.* (FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary, Mar. 20, 1979, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1199.pdf>.)

<sup>21</sup> Technical Report Summary, Final Comprehensive Report on FM 3422, Feb. 2, 1979, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX2563.pdf>.

<sup>22</sup> 3M Internal Correspondence from R. Howell to C. Olsen re: Fluorochemicals in the Environment with attachments, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1372.pdf>.

notify the EPA of the finding.<sup>23</sup> 3M told the EPA in 1980 only that it had discovered PFOS in the blood of “some of our plant employees.”

180. By at least the end of the 1980s, additional research and testing performed by Defendants, including at least 3M and DuPont, indicated that elevated incidence of certain cancers and other adverse health effects, including elevated liver enzymes and birth defects, had been observed among workers exposed to such materials, including at least PFOA, but such data was not published, provided to governmental entities as required by law, or otherwise publicly disclosed at the time.

181. In 1981, DuPont tested for and found PFOA in the blood of female plant workers at its Washington Works plant in Parkersburg, West Virginia, where it had been using 3M’s PFOA to manufacture Teflon since 1951. DuPont observed and documented pregnancy outcomes in exposed workers, finding two of seven children born to female plant workers between 1979 and 1981 had birth defects—one an “unconfirmed” eye and tear duct defect, and one a nostril and eye defect.<sup>24</sup>

182. In 1983, 3M researchers concluded that concerns about PFAS “give rise to concern for environmental safety,” including “legitimate questions about the persistence, accumulation potential, and ecotoxicity of fluorochemicals in the environment.”<sup>25</sup> That same year, 3M completed a study finding that PFOS caused the growth of cancerous tumors in rats.<sup>26</sup> This finding was later

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<sup>23</sup> Memorandum from R.A. Prokop to J.D. Lazerte re: Disclosure of Information on Levels of Fluorochemicals in Blood, July 26, 1979, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX2723.pdf>.

<sup>24</sup> C-8 Blood Sampling Results, *available at* <http://tiny.cc/v8z1mz>.

<sup>25</sup> 3M Environmental Laboratory (EE & PC), Fate of Fluorochemicals - Phase II, May 20, 1983, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1284.pdf>.

<sup>26</sup> Two Year Oral (Diet) Toxicity/Carcinogenicity Study of Fluorochemical FC-143 in Rats, Volume 1 of 4, Aug. 29, 1987, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1337.pdf>.



shared with DuPont and led them to consider whether “they may be obliged under their policy to call FC-143 a carcinogen in animals.”<sup>27</sup>

183. In 1984, 3M documented a trend of increasing levels of PFOS in the bodies of 3M workers, leading one of the company’s medical officers to warn in an internal memo: “we must view this present trend with serious concern. It is certainly possible that . . . exposure opportunities are providing a potential uptake of fluorochemicals that exceeds excretion capabilities of the body.”<sup>28</sup>

184. The same year, DuPont tested drinking water near its Washington Works plant and found elevated PFOA levels in the water, but, after deciding that limiting PFOA discharge from the plant would not be “economically attractive,” it did nothing to reduce contamination from the plant.

iv. 1990s-2000s: With 3M and DuPont Under Scrutiny, the AFFF Market Shifts to Telomerization

185. Federal law requires chemical manufacturers and distributors to immediately notify the EPA if they have information that “reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment.” Toxic Substances Control Act (“TSCA”) § 8(e), 15 U.S.C. § 2607(e).

186. Despite its decades of research, 3M waited until May 1998 to submit a report to the EPA under TSCA Section 8(e). Even in that submission, however, 3M downplayed what it knew, according to a former employee:

Just before that submission we found PFOS in the blood of eaglets—eaglets still young enough that their only food consisted of fish caught in remote lakes by their parents. This finding indicates a widespread environmental contamination and food chain transfer and probable

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<sup>27</sup> Memorandum from R.G. Perkins to F.D. Griffith re: Summary of the Review of the FC-143 Two-Year Feeder Study Report to be presented at the January 7, 1988 meeting with DuPont, January 5, 1988, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1343.pdf>.

<sup>28</sup> Memorandum from D.E. Roach to P.F. Riehle re: Organic Fluorine Levels, Aug. 31, 1984, available at <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1313.pdf>.

bioaccumulation and bio-magnification. This is a very significant finding that the 8(e) reporting rule was created to collect. 3M chose to report simply that PFOS had been found in the blood of animals, which is true but omits the most significant information.<sup>29</sup>

187. Although 3M acknowledged, in 1998, the presence of PFOS in the blood of the general population, it insisted that it did not “believe that any reasonable basis exists to conclude that PFOS ‘presents a substantial risk of injury to health or the environment.’” Internally, the message was quite different: 3M’s Manager of Corporate Toxicology advised the company to replace “PFOS-based chemistry as these compounds [are] *VERY persistent and thus insidiously toxic.*”

188. In 2000, 3M, after half a century of manufacturing fluorinated chemicals through ECF, announced that it would phase out its production of several long-chain PFAS compounds, including PFOA, although it continued to manufacture other PFAS chemicals.

189. In April 2006, 3M agreed to pay EPA a penalty of more than \$1.5 million after being cited for 244 violations of the TSCA, which included violations for failing to disclose studies regarding PFOS, PFOA, and other fluorinated compounds, dating back decades.

190. Likewise, in December 2005, the EPA announced it was imposing the “Largest Environmental Administrative Penalty in Agency History” against DuPont based on evidence that it violated the TSCA by concealing the environmental and health effects of PFOA.

191. On information and belief, Defendants knew or should have known that AFFF containing PFOA or PFOS would very likely injure and/or threaten public health and the environment, even when used as intended or directed.

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<sup>29</sup> Letter from R. Purdy, Mar. 28, 1999, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1001.pdf>.

192. Defendants failed to warn of these risks to the environment and public health, including the impact of their AFFF/Component Products on the quality of unprotected water sources.

193. Defendants were all sophisticated and knowledgeable in the art and science of designing, formulating, and manufacturing AFFF/Component Products. They understood far more about the properties of their AFFF/Component Products—including the potential hazards they posed to human health and the environment—than any of their customers. Still, Defendants declined to use their sophistication and knowledge to design safer products.

**D. The Impact of PFOS and PFOA on the Environment and Human Health Is Finally Revealed**

194. As discussed above, neither 3M, DuPont, nor, on information and belief, any other Defendant complied with their obligations to notify EPA about the “substantial risk of injury to health or the environment” posed by their AFFF/Component Products. *See* TSCA § 8(e).

195. Despite decades of research, 3M first shared its concerns with EPA in the late 1990s. In a May 1998 report submitted to EPA, “3M chose to report simply that PFOS had been found in the blood of animals, which is true but omits the most significant information,” according to a former 3M employee.<sup>30</sup>

196. On information and belief, 3M began in 2000 to phase out its production of products that contained PFOS and PFOA in response to pressure from the EPA.

197. Once the truth about PFOS and PFOA was revealed, researchers began to study the environmental and health effects associated with them, including a “C8 Science Panel” formed out

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<sup>30</sup> *Id.* Letter from R. Purdy, Mar. 28, 1999, *available at* <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1001.pdf>.

of a class action settlement arising from contamination from DuPont's Washington Works located in Wood County, West Virginia.

198. The C8 panel consisted of three epidemiologists specifically tasked with determining whether there was a probable link between PFOA exposure and human diseases. In 2012, the panel found probable links between PFOA and kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, pregnancy-induced hypertension (including preeclampsia), and hypercholesterolemia.

199. Human health effects associated with PFOS exposure include immune system effects, changes in liver enzymes and thyroid hormones, low birth weight, high uric acid, and high cholesterol. In laboratory testing on animals, PFOA and PFOS have caused the growth of tumors, changed hormone levels, and affected the function of the liver, thyroid, pancreas, and immune system.

200. The injuries caused by PFAS can arise months or years after exposure.

201. Even after the C8 Science Panel publicly announced that human exposure to 50 parts per trillion, or more, of PFOA in drinking water for one year or longer had "probable links" with certain human diseases, including kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, preeclampsia, and medically-diagnosed high cholesterol, Defendants repeatedly assured and represented to governmental entities, their customers, and the public (and continue to do so) that the presence of PFOA in human blood at the levels found within the United States presents no risk of harm and is of no legal, toxicological, or medical significance of any kind.

202. Furthermore, Defendants have represented to and assured such governmental entities, their customers, and the public (and continue to do so) that the work of the independent

C8 Science Panel was inadequate to satisfy the standards of Defendants to prove such adverse effects upon and/or any risk to humans with respect to PFOA in human blood.

203. At all relevant times, Defendants, through their acts and/or omissions, controlled, minimized, trivialized, manipulated, and/or otherwise influenced the information that was published in peer-review journals, released by any governmental entity, and/or otherwise made available to the public relating to PFAS in human blood and any alleged adverse impacts and/or risks associated therewith, effectively preventing the public from discovering the existence and extent of any injuries/harm as alleged herein.

#### **E. The Fire Fighting Foam Coalition**

204. Following 3M's phase-out of ECF production and its AFFF product, telomerization emerged as the dominant manufacturing process for fluorosurfactants. 3M had been the dominant manufacturer in the lucrative AFFF market, and multiple companies seized the opportunity created by 3M's withdrawal. But the market opportunity presented uncertainties, as it was unclear whether regulators would view the telomer-based AFFF as posing the same hazards as 3M's PFOS-containing AFFF. The key question for regulators was whether the telomer-based AFFF would degrade to PFOA once in the environment.

205. Defendants Tyco, Chemguard, Kidde, National Foam, and Buckeye formed a group called the Fire Fighting Foam Coalition ("FFFC") to protect their business opportunity and advocate for the continued use of telomer-based AFFF. The FFFC declared that it would serve as "a single source for accurate, balanced information on environment related questions" and would "ensure that accurate information about PFOS alternatives, including telomer-based products, is disseminated in the marketplace."<sup>31</sup> The FFFC made several representations regarding the safety

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<sup>31</sup> Fact Sheet on AFFF Fire Fighting Agents, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?\\_ga=2.136386352.1253861871.1649070681-](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?_ga=2.136386352.1253861871.1649070681-)

of telomer-based AFFF that were either misleading half-truths or were contrary to Defendants' internal knowledge. For example, the FFFC assured the public that "telomer based AFFF does not contain PFOS and cannot be oxidized or metabolized into PFOS."<sup>32</sup> This statement was true, but only because PFOS was exclusively manufactured by 3M, and it did not mean that telomer-based AFFF was any safer.

206. The FFFC also told the EPA in 2001 that telomer-based AFFF "does not contain any PFOA-based product."<sup>33</sup> The issue, however, was whether telomer-based AFFF could degrade into PFOA. One company executive admitted in an internal memo that his company's AFFF "will degrade in the environment" to produce PFOA and the "question is how toxic" and how "bioaccumulative" these degraded products are.<sup>34</sup> But contrary to this internal acknowledgment, the FFFC publicly asserted that "telomer based fire fighting foams are not likely to be a source of PFOA in the environment."<sup>35</sup>

207. The EPA appointed a committee known as the Telomer Technical Workgroup to make recommendations to the agency. The president of the FFFC represented the telomer-based

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2123137255.1639662520.

<sup>32</sup> *Id.* Fact Sheet on AFFF Fire Fighting Agents, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?\\_ga=2.136386352.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?_ga=2.136386352.1253861871.1649070681-2123137255.1639662520).

<sup>33</sup> *Id.* Fact Sheet on AFFF Fire Fighting Agents, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?\\_ga=2.136386352.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?_ga=2.136386352.1253861871.1649070681-2123137255.1639662520).

<sup>34</sup> *In Re: Aqueous Film-Forming Foams Prods. Liab. Litig.*, 2:18-mn-02873-RMG:28, Email chain from John Dowling to Anne Regina re: EPA meeting: Comments (Apr. 18, 2001) attached as an exhibit to Plaintiffs' Omnibus Opposition to Defendants' Motion for Partial Summary Judgment on the Second and Third Prongs of the Government Contractor Immunity Defense, ECF 2409-112.

<sup>35</sup> PFOA ECA Plenary Meeting, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers\\_Safe\\_Email.pdf?\\_ga=2.128105996.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers_Safe_Email.pdf?_ga=2.128105996.1253861871.1649070681-2123137255.1639662520).

AFFF industry on the EPA committee. When, in 2003, the Telomer Technical Workgroup reported its conclusions and recommendations, the FFFC president was the spokesperson.

208. In what the FFFC president called a “major victory” for the industry, the EPA accepted the proposal of its Workgroup that “telomer-based fire fighting foams no longer be considered as part of the PFOA ECA process.”<sup>36</sup> The FFFC president remarked that “[w]hen we started this organization two years ago [in 2001], the fate of telomer based AFFF was being tied directly to the fate of PFOA and the EPA had just told the military to start searching for alternatives to AFFF.”<sup>37</sup> The telomer-based AFFF Defendants had successfully forestalled government restrictions on their products, thereby prolonging the use of AFFF in the vicinity of Plaintiff’s drinking water supply and elsewhere.

209. The fluorochemicals the Fluorosurfactant Defendants needed to manufacture those fluorosurfactants contained PFOS, PFOA, and/or their chemical precursors and were designed, manufactured, marketed, distributed and/or sold by the Fluorochemical Defendants.

210. On information and belief, the Fluorochemical and Fluorosurfactant Defendants were aware that the fluorochemicals and fluorosurfactants they designed, manufactured, marketed, distributed, and/or sold would be used in the AFFF products designed, manufactured, marketed, distributed, and/or sold by the AFFF Defendants.

211. On information and belief, the PFC and Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and/or sold the fluorochemicals and/or fluorosurfactants

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<sup>36</sup> *Id.* PFOA ECA Plenary Meeting, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers\\_Safe\\_Email.pdf?\\_ga=2.128105996.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers_Safe_Email.pdf?_ga=2.128105996.1253861871.1649070681-2123137255.1639662520).

<sup>37</sup> *Id.* PFOA ECA Plenary Meeting, *available at* [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers\\_Safe\\_Email.pdf?\\_ga=2.128105996.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2003-Telomers_Safe_Email.pdf?_ga=2.128105996.1253861871.1649070681-2123137255.1639662520).

contained in the AFFF products discharged into the environment during fire protection, training, and response activities conducted in the vicinity of Plaintiff's drinking water supply, resulting in widespread PFAS contamination.

**F. Federal, State, and International Government Agencies Call for Monitoring and Cleanup of PFAS Contamination**

212. On May 2, 2012, the EPA published its Third Unregulated Contaminant Monitoring Rule ("UCMR3"), requiring public water systems nationwide to monitor for thirty contaminants of concern between 2013 and 2015, including PFOS and PFOA.<sup>38</sup>

213. In the May 2015 "Madrid Statement on Poly- and Perfluoroalkyl Substances (PFAS's)," scientists and other professionals from a variety of disciplines, concerned about the production and release into the environment of PFOA, called for greater regulation, restrictions, limits on the manufacture and handling of any PFOA containing product, and to develop safe non-fluorinated alternatives to these products to avoid long-term harm to human health and the environment.<sup>39</sup>

214. On May 25, 2016, the EPA released a lifetime health advisory level (HAL) for drinking water and health effects support documents for PFOS and PFOA.<sup>40</sup> The EPA developed the HAL to assist governmental officials in protecting public health when PFOS and PFOA are present in drinking water. The EPA HAL identified the concentration of PFOS and PFOA in drinking water at or below which adverse health effects are not anticipated to occur over a lifetime

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<sup>38</sup> *Revisions to the Unregulated Contaminant Monitoring Regulation (UCMR 3) for Public Water Systems*, 77 Fed. Reg. 26072 (May 2, 2012).

<sup>39</sup> Blum A, Balan SA, Scheringer M, Trier X, Goldenman G, Cousins IT, Diamond M, Fletcher T, Higgins C, Lindeman AE, Peaslee G, de Voogt P, Wang Z, Weber R. 2015. The Madrid statement on poly- and perfluoroalkyl substances (PFASs). *Environ Health Perspect* 123:A107–A111; <http://dx.doi.org/10.1289/ehp.1509934>.

<sup>40</sup> See Fed. Register, Vol. 81, No. 101, May 25, 2016, Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate.



of exposure at 0.07 ppb or 70 ppt. The HAL was based on peer-reviewed studies of the effects of PFOS and PFOA on laboratory animals (rats and mice) and was also informed by epidemiological studies of human populations exposed to PFOS. These studies indicated that exposure to PFOS and PFOA over the HAL could result in adverse health effects, including:

- a. Developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations);
- b. Cancer (testicular and kidney);
- c. Liver effects (tissue damage);
- d. Immune effects (e.g., antibody production and immunity);
- e. Thyroid disease and other effects (e.g., cholesterol changes).

215. In 2016, the National Toxicology Program of the United States Department of Health and Human Services (“NTP”) and the International Agency for Research on Cancer (“IARC”) both released extensive analyses of the expanding body of research regarding the adverse effects of fluorochemicals. The NTP concluded that both PFOA and PFOS are “presumed to be an immune hazard to humans” based on a “consistent pattern of findings” of adverse immune effects in human (epidemiology) studies and “high confidence” that PFOA and PFOS exposure was associated with suppression of immune responses in animal (toxicology) studies.<sup>41</sup>

216. IARC similarly concluded that there is “evidence” of “the carcinogenicity of . . . PFOA” in humans and in experimental animals, meaning that “[a] positive association has been

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<sup>41</sup> See U.S. Dep’t of Health and Human Services, Nat’l Toxicology Program, *NTP Monograph: Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid or Perfluorooctane Sulfonate* (Sept. 2016), at 1, 17, 19, available at [https://ntp.niehs.nih.gov/ntp/ohat/pfoa\\_pfos/pfoa\\_pfosmonograph\\_508.pdf](https://ntp.niehs.nih.gov/ntp/ohat/pfoa_pfos/pfoa_pfosmonograph_508.pdf)

observed between exposure to the agent and cancer for which a causal interpretation is . . . credible.”<sup>42</sup>

217. California has listed PFOA and PFOS to its Proposition 65 list as a chemical known to cause reproductive toxicity under the Safe Drinking Water and Toxic Enforcement Act of 1986.<sup>43</sup>

218. The United States Senate and House of Representatives passed the National Defense Authorization Act in November 2017, which included \$42 million to remediate fluorochemical contamination from military bases, as well as devoting \$7 million toward the Investing in Testing Act, which authorizes the Center for Disease Control and Prevention (“CDC”) to conduct a study into the long-term health effects of PFOA and PFOS exposure.<sup>44</sup> The legislation also required that the Department of Defense submit a report on the status of developing a new military specification for AFFF that did not contain PFOS or PFOA.<sup>45</sup>

219. In June 2018, the Agency for Toxic Substances and Disease Registry (“ATSDR”) and EPA released a draft toxicological profile for PFOS and PFOA and recommended the drinking water advisory levels be lowered to 11 ppt for PFOA and 7 ppt for PFOS.<sup>46</sup>

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<sup>42</sup> See Int’l Agency for Research on Cancer, IARC Monographs: *Some Chemicals Used as Solvents and in Polymer Manufacture* (Dec. 2016), at 27, 97, available at <http://monographs.iarc.fr/ENG/Monographs/vol110/mono110.pdf>.

<sup>43</sup> California Office of Environmental Health Hazard Assessment, *Chemicals Listed Effective Nov. 10, 2017 as Known to the State of California to Cause Reproductive Toxicity: Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)*, Nov. 9, 2017, available at <https://oehha.ca.gov/proposition-65/crn/chemicals-listed-effective-november-10-2017-known-state-california-cause>.

<sup>44</sup> National Defense Authorization Act for Fiscal Year 2018, H.R. 2810, 115th Congress (2017), available at <https://www.congress.gov/115/plaws/publ91/PLAW-115publ91.pdf>.

<sup>45</sup> *Id.*; see also U.S. Department of Defense, *Alternatives to Aqueous Film Forming Foam Report to Congress*, June 2018, available at <https://www.denix.osd.mil/derp/home/documents/alternatives-to-aqueous-film-forming-foam-report-to-congress/>.

<sup>46</sup> ATSDR, *Toxicological Profile for Perfluoroalkyls: Draft for Public Comment* (June 2018), available at <https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf>.

220. In December 2019, the United States Senate and House of Representatives passed the National Defense Authorization Act for Fiscal Year 2020 (“FY 2020 NDAA”), which introduced new prohibitions on the use of PFAS-containing AFFF for land-based applications.<sup>47</sup> Section 322 of the Act introduced a timeline for the phasing out of AFFF use by the military, including by requiring the Secretary of the Navy to publish a new military specification for a fluorine-free fire-fighting agent for use at all military installations by January 31, 2023. Section 322(b) and (c) then provide that Department of Defense organizations will no longer be authorized to purchase AFFF containing more than 1 part per billion of PFAS after October 1, 2023, and that after October 1, 2024, this prohibition will extend to the use of any PFAS-containing AFFF at any military installation.

221. On February 20, 2020, the EPA announced a proposed decision to regulate PFOA and PFOS under the Safe Drinking Water Act, which the agency characterized as a “key milestone” in its efforts to “help communities address per- and polyfluoroalkyl substances (PFAS) nationwide.”<sup>48</sup>

222. On June 15, 2022, the EPA released new drinking water health advisory levels (HALs) for four PFAS, including new interim HALs for PFOS and PFOA that departed significantly from the 2016 EPA HAL they replaced.<sup>49</sup> Specifically, EPA issued HALs of 0.004 ppt for PFOA and 0.02 ppt for PFOS,<sup>50</sup> which collectively accounted for only a small fraction of

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<sup>47</sup> National Defense Authorization Act for Fiscal Year 2020, S. 1790, 116th Congress (2019), *available at* <https://www.govinfo.gov/content/pkg/BILLS-116s1790enr/pdf/BILLS-116s1790enr.pdf>.

<sup>48</sup> Press Release, *EPA Announces Proposed Decision to Regulate PFOA and PFOS in Drinking Water*, Feb. 20, 2020, *available at* <https://www.epa.gov/newsreleases/epa-announces-proposed-decision-regulate-pfoa-and-pfos-drinking-water>.

<sup>49</sup> *See* Fed. Register, Vol. 87, No. 36848, June 21, 2022, Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances.

<sup>50</sup> *Id.* Fed. Register, Vol. 87, No. 36848, June 21, 2022, Lifetime Drinking Water Health Advisories for

the combined 70 ppt HAL that preceded them. Importantly, EPA set these interim HALs at levels below which PFOS and PFOA can be measured using current analytic methods, meaning that the mere detection of PFOS or PFOA in a water provider's system would be sufficient on its own to exceed the new levels.

223. As support for its decision, EPA explained that the science had evolved since 2016 and that the new interim HALs for PFOS and PFOA were “based on human studies” that “found associations between PFOA and/or PFOS exposure and effects on the immune system, the cardiovascular system, human development (e.g., decreased birth weight), and cancer.”<sup>51</sup> Specifically, EPA had performed updated health effects analyses for PFOS and PFOA to provide support for the drinking water regulations the agency planned to adopt for the two chemicals under the SDWA. Based on these analyses, EPA concluded that “the levels at which negative health effects could occur are much lower than previously understood when EPA issued the 2016 health advisories for PFOA and PFOS – including near zero for certain health effects.”<sup>52</sup> For this reason, the agency determined there was a “pressing need to provide updated information on the current best available science to public health officials prior to finalization of the health effects assessment.”<sup>53</sup>

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Four Perfluoroalkyl Substances.

<sup>51</sup> EPA, *Drinking Water Health Advisories for PFAS Fact Sheet for Communities* at 1-2 (June 2022), available at <https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-communities.pdf>.

<sup>52</sup> EPA, *Drinking Water Health Advisories for PFAS Fact Sheet for Public Water Systems* at 2 (June 2022), available at <https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-water-system.pdf>.

<sup>53</sup> EPA Office of Water, EPA Doc. No. 822-R-22-003, *INTERIM Drinking Water Health Advisory: Perfluorooctanoic Acid (PFOA) CASRN 335-67-1* at 18 (June 2022), available at <https://www.epa.gov/system/files/documents/2022-06/interim-pfoa-2022.pdf>; EPA Office of Water, EPA Doc. No. 822-R-22-004, *INTERIM Drinking Water Health Advisory: CASRN 1763-23-1* at 18 (June 2022), available at <https://www.epa.gov/system/files/documents/2022-06/interim-pfos-2022.pdf>.

224. Because the referenced health analyses are still undergoing final review by EPA’s Science Advisory Board, the agency has stated that the new interim HALs for PFOS and PFOA are subject to change. EPA has indicated, however, that it does not anticipate any changes resulting in revised HALs for PFOS and PFOA that are greater than the 4 ppt minimum reporting level<sup>54</sup> that applies to Public Water Systems.<sup>55</sup>

225. On September 6, 2022, EPA published a notice of proposed rulemaking seeking public comment on its plan to designate PFOS and PFOA as hazardous substances under CERCLA.<sup>56</sup> Pursuant to that notice, all comments from the public must be submitted by November 7, 2022.

226. On January 6, 2023, the Defense Logistics Agency within the Department of Defense published a new Military Specification for “Fire Extinguishing Agent, Fluorine-Free Foam (F3) Liquid Concentrate, for Land-Based, Fresh Water Application,” MIL-PRF-32725 (“F3 MilSpec”) in accordance with § 332(a)(1) of the FY 2020 NDAA.<sup>57</sup> This new specification will govern fire extinguishing foams used by all Department of Defense organizations and will require such foams to test “non-detect” for PFAS. The specification further requires manufacturers to “certify in writing that PFAS has not intentionally been added to the concentrate.”

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<sup>54</sup> As EPA’s website explains, the Minimum Reporting Level (“MRL”) for Unregulated Contaminant Monitoring Rule (UCMR) 5 is the minimum quantitation level that, with 95 percent confidence, can be achieved by capable analysts at 75 percent or more of the laboratories using a specified analytical method. The MRLs in EPA’s chart are based on the UCMR 5 requirement to use EPA Method 533.

<sup>55</sup> EPA, *Drinking Water Health Advisories for PFAS Fact Sheet for Public Water Systems* at 2 (June 2022), available at <https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-water-system.pdf>.

<sup>56</sup> See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. 54415 (Sep. 6, 2022).

<sup>57</sup> Available on the Defense Logistics Agency’s website, [https://quicksearch.dla.mil/qsDocDetails.aspx?ident\\_number=285047](https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=285047).

**G. Contamination of Plaintiff's Water System Caused by the Use of AFFF**

227. Plaintiff is the owner and operator of a public water system located on Woodbury Elementary School at 63 Valley Lake Rd, Woodbury, VT 05681, and serves approximately 100 people between the Woodbury Elementary School and the Woodbury Community Library.

228. Plaintiff's system draws the drinking water it provides to customers from 1 groundwater well.

229. On March 17, 2020, a revised Vermont Water Supply Rule was adopted to establish a Maximum Contaminant Level (MCL) as well as routine public drinking water monitoring frequencies for PFAS. The MCL is 20 nanograms per liter (ng/L) and it is for five PFAS in drinking water: PFOA (perfluorooctanoic acid), PFOS (perfluorooctane sulfonic acid), PFHxS (perfluorohexane sulfonic acid), PFHpA (perfluoroheptanoic acid), PFNA (perfluorononanoic acid). The sum of these five PFAS cannot exceed 20 ng/L.

230. Plaintiff has detected PFAS in its groundwater well above the Vermont MCL.

231. On information and belief, the PFAS contamination described above is a direct and proximate result of fire protection, training, and response activities in the area near Plaintiff's water system, resulting in the migration of PFAS into Plaintiff's water supply.

232. In order to ensure that it can continue to provide clean and safe water to residences, Plaintiff has and will continue to take actions to address the above contamination of its property and its potable water supply caused by the Defendants.

233. Such actions include but are not limited to additional testing and monitoring for PFAS; planning, designing, purchasing, installing, and maintaining water filtration systems to remove these chemicals; infrastructure modifications; contingency planning; and community outreach.

234. Due to the persistent and long-term nature of PFAS contamination, Plaintiff is expected to suffer damages and incur the costs associated with these and other ongoing necessary remedial actions for many years to come.

235. Through this action, Plaintiff seeks compensatory damages for the harm done to its property and the costs associated with investigating, remediating, and monitoring its drinking water supplies contaminated with PFAS due to the use of AFFF in the area near Plaintiff's water system.

**H. AFFF Containing PFOS and PFOA Is Fungible and Commingled in the Groundwater**

236. AFFF containing PFOS and/or PFOA, once it has been released to the environment, lacks characteristics that would enable identification of the company that manufactured that particular batch of AFFF or chemical feedstock.

237. A subsurface plume, even if it comes from a single location, such as a retention pond or fire training area, originates from mixed batches of AFFF and chemical feedstock coming from different manufacturers.

238. Because precise identification of the specific manufacturer of any given AFFF/Component Product that was a source of the PFAS found in Plaintiff's drinking water supply is nearly impossible, given certain exceptions, Plaintiff must pursue all Defendants, jointly and severally.

239. Defendants are also jointly and severally liable because they conspired to conceal the true toxic nature of PFOS and PFOA, to profit from the use of AFFF/Component Products containing PFOS and PFOA, at Plaintiff's expense, and to attempt to avoid liability.

**MARKET SHARE LIABILITY, ALTERNATIVE LIABILITY,  
CONCERT OF ACTION, AND ENTERPRISE LIABILITY**

240. Defendants in this action are manufacturers that control a substantial share of the market for AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors in the United States and are jointly responsible for the contamination of Plaintiff's property, including the soil, sediment, surface water, and groundwater. Market share liability attaches to all Defendants and the liability of each should be assigned according to its percentage of the market for AFFF/Component Products at issue in this Complaint.

241. Because PFAS is fungible, it is impossible to identify the exact Defendant who manufactured any given AFFF/Component Product containing PFOS, PFOA, and/or their chemical precursors found free in the air, soil or groundwater, and each of these Defendants participated in a territory-wide and U.S. national market for AFFF/Component Products during the relevant time.

242. Concert of action liability attaches to all Defendants, each of which participated in a common plan to commit the torts alleged herein and each of which acted tortuously in pursuance of the common plan to knowingly manufacture and sell inherently dangerous AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors.

243. Enterprise liability attaches to all the named Defendants for casting defective products into the stream of commerce.

**CAUSES OF ACTION**

**COUNT I:  
DEFECTIVE DESIGN**

244. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 234 above, and further alleges the following:



245. As manufacturers of AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, Defendants owed a duty to all persons whom its products might foreseeably harm, including Plaintiff, and not to market any product which is unreasonably dangerous in design for its reasonably anticipated use.

246. Defendants' AFFF/Component Products were unreasonably dangerous for its reasonably anticipated uses for the following reasons:

- a. PFAS causes extensive groundwater contamination, even when used in its foreseeable and intended manner;
- b. Even at extremely low levels, PFAS render drinking water unfit for consumption;
- c. PFAS poses significant threats to public health; and
- d. PFAS create real and potential environmental damage.

247. Defendants knew of these risks and failed to use reasonable care in the design of their AFFF/Component Products.

248. AFFF containing PFOS, PFOA, and/or their chemical precursors poses a greater danger to the environment and to human health than would be expected by ordinary persons such as Plaintiff and the general public.

249. At all times, Defendants were capable of making AFFF/Component Products that did not contain PFOS, PFOA, and/or their chemical precursors. Thus, reasonable alternative designs existed which were capable of preventing Plaintiff's injuries.

250. The risks posed by AFFF containing PFOS, PFOA, and/or their chemical precursors far outweigh the products' utility as a flame-control product.

251. The likelihood that Defendants' AFFF/Component Products would be spilled, discharged, disposed of, or released into the environment and contaminate Plaintiff's drinking

water supply far outweighed any burden on Defendants to adopt an alternative design, and outweighed the adverse effect, if any, of such alternative design on the utility of the product.

252. As a direct and proximate result of Defendants' unreasonably dangerous design, manufacture, and sale of AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, Plaintiff's property and water system has become contaminated with PFAS.

253. Defendants knew that it was substantially certain that their acts and omissions described above would contaminate Plaintiff's property and water system. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health and safety, and/or property rights.

**COUNT II:**  
**FAILURE TO WARN**

254. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 244 above, and further alleges the following:

255. As manufacturers of AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, Defendants had a duty to provide adequate warnings of the risks of these products to all persons whom its product might foreseeably harm, including Plaintiff and the public.

256. Defendants' AFFF/Component Products were unreasonably dangerous for its reasonably anticipated uses for the following reasons:

- a. PFAS causes extensive groundwater contamination, even when used in its foreseeable and intended manner;
- b. Even at extremely low levels, PFAS render drinking water unfit for consumption;
- c. PFAS poses significant threats to public health; and

d. PFAS create real and potential environmental damage.

257. Defendants knew of the health and environmental risks associated with their AFFF/Component Products, and failed to provide a warning that would lead an ordinary reasonable user or handler of a product to contemplate the dangers associated with their products or an instruction that would have avoided Plaintiff's injuries.

258. Despite Defendants' knowledge of the environmental and human health hazards associated with the use and/or disposal of their AFFF/Component Products in the vicinity of drinking water supplies, including PFAS contamination of public drinking supplies and private wells, Defendants failed to issue any warnings, instructions, recalls, or advice regarding their AFFF/Component Products to Plaintiff, governmental agencies or the public.

259. As a direct and proximate result of Defendants' failure to warn, Plaintiff's property and water system has become contaminated with PFAS.

260. Defendants knew that it was substantially certain that their acts and omissions described above would contaminate Plaintiff's property and water system. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health and safety, and/or property rights.

**COUNT III:**  
**NEGLIGENCE**

261. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 251 above, and further alleges the following:

262. As manufacturers of AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, Defendants owed a duty to Plaintiff and to all persons whom its products

might foreseeably harm and to exercise due care in the formulation, manufacture, sale, labeling, warning, and use of PFAS-containing AFFF.

263. Defendants owed a duty to Plaintiff to act reasonably and not place inherently dangerous AFFF/Component Products into the marketplace when its release into the air, soil, and water was imminent and certain.

264. Defendants knew or should have known that PFAS were leaching from AFFF used for fire protection, training, and response activities.

265. Defendants knew or should have known that PFAS are highly soluble in water, highly mobile, extremely persistent in the environment, and high likely to contaminate water supplies if released into the environment.

266. Defendants knew or should have known that the manner in which they were designing, manufacturing, marketing, distributing, and selling their AFFF/Component Products would result in contamination of Plaintiff's property and water system with PFAS.

267. Despite the fact that Defendants knew or should have known that PFAS are toxic, can contaminate water resources and are carcinogenic, Defendants negligently:

- a. designed, manufactured, formulated, handled, labeled, instructed, controlled, marketed, promoted, and/or sold AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors;
- b. issued deficient instructions on how their AFFF/Component Products should be used and disposed of, thereby permitting PFAS to contaminate the groundwater in and around Plaintiff's drinking water supply;

- c. failed to recall and/or warn the users of their AFFF/Component Products of the dangers of groundwater contamination as a result of standard use and disposal of their products;
- d. failed and refused to issue the appropriate warning and/or recalls to the users of their AFFF/Component Products; and
- e. failing to take reasonable, adequate, and sufficient steps or actions to eliminate, correct, or remedy any contamination after it occurred.

268. The magnitude of the burden on the Defendants to guard against this foreseeable harm to Plaintiff was minimal, as the practical consequences of placing this burden on the Defendants amounted to a burden to provide adequate instructions, proper labeling, and sufficient warnings about their AFFF/Component Products.

269. As manufacturers, Defendants were in the best position to provide adequate instructions, proper labeling, and sufficient warnings about their AFFF/Component Products, and to take steps to eliminate, correct, or remedy any contamination they caused.

270. As a direct and proximate result of Defendants' negligence, Plaintiff's property and water system have become contaminated with PFAS.

271. Defendants knew that it was substantially certain that their acts and omissions described above would contaminate Plaintiff's property and water system. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health and safety, and/or property rights.

**COUNT IV:**  
**TRESPASS**

272. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 262 above, and further alleges the following:

273. Plaintiff is the owner, operator, and actual possessor of real property and improvements used for collecting drinking water.

274. Defendants designed, manufactured, distributed, marketed, and sold AFFF/Component Products with the actual knowledge and/or substantial certainty that AFFF containing PFOS, PFOA, and/or their chemical precursors would, through normal use, release PFAS that would migrate into groundwater, causing contamination.

275. Defendants negligently, recklessly, and/or intentionally designed, manufactured, distributed, marketed, and sold AFFF/Component Products in a manner that caused PFAS to contaminate Plaintiff's property.

276. As a direct and proximate result of Defendants' trespass, Plaintiff has suffered and continues to suffer property damage requiring investigation, remediation, and monitoring costs.

277. Defendants knew that it was substantially certain that their acts and omissions described above would threaten public health and cause extensive contamination of property, including groundwater collected for drinking. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for the health and safety of others, and for Plaintiff's property rights.

**COUNT V:**  
**ACTUAL FRAUDULENT TRANSFER (DuPont and Chemours Co.)**

278. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 268 above, and further alleges the following:

279. Through their effectuation of the Spinoff, Chemours Co. and DuPont (the “Fraudulent Transfer Defendants”) caused Chemours Co. to transfer valuable assets to DuPont, including but not limited to the \$3.9 billion dividend (the “Transfers”), while simultaneously assuming significant liabilities (the “Assumed Liabilities”).

280. The Transfers and Assumed Liabilities were made for the benefit of DuPont.

281. At the time that the Transfers were made and the Liabilities were assumed, and until the Spinoff was complete, DuPont was in a position to, and in fact did, control and dominate Chemours Co.

282. The Fraudulent Transfer Defendants made the Transfers and incurred the Assumed Liabilities with the actual intent to hinder, delay, and defraud the creditors or future creditors of Chemours Co.

283. Plaintiff has been harmed as a result of the conduct of the Fraudulent Transfer Defendants.

284. Plaintiff is entitled to avoid the Transfers and to recover property or value transferred to DuPont.

**COUNT VI:**  
**CONSTRUCTIVE FRAUDULENT TRANSFER (DuPont and Chemours Co.)**

285. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 275 above, and further alleges the following:

286. Chemours Co. did not receive reasonably equivalent value from DuPont in exchange for the Transfers and Assumed Liabilities.

287. Each of the Transfers and the assumption of the Assumed Liabilities by Chemours Co. was made to or for the benefit of DuPont.

288. At the time that the Transfers were made and the Assumed Liabilities were assumed, and until the Spinoff was complete, DuPont was in a position to, and in fact did, control and dominate Chemours Co.

289. The Fraudulent Transfer Defendants made the Transfers and assumed the Assumed Liabilities when Chemours Co. was engaged or about to be engaged in a business for which its remaining assets were unreasonably small in relation to its business.

290. Chemours Co. was insolvent or in contemplation of insolvency at the time of the Transfers, or became insolvent as a result of the Transfers and its assumption of the Assumed Liabilities.

291. At the time that the Transfers were made and Chemours Co. assumed the Assumed Liabilities, the Fraudulent Transfer Defendants intended to incur, or believed or reasonably should have believed, that Chemours Co. would incur debts beyond its ability to pay as they became due.

292. Plaintiff has been harmed as a result of the Transfers.

293. Plaintiff is entitled to avoid the Transfers and to recover property or value transferred to DuPont.

**COUNT VII:**  
**PUNITIVE DAMAGES**

294. Plaintiff adopts, realleges, and incorporates each and every allegation in the paragraphs 1 through 284 above, and further alleges the following:

295. Defendants engaged in willful, wanton, malicious, and or/reckless conduct that caused the foregoing damage upon Plaintiff, disregarding their protected rights.

296. Defendants' willful, wanton, malicious, and/or reckless conduct includes but is not limited to Defendants' failure to take all reasonable measures to ensure PFAS would not be released into the environment and inevitably contaminate Plaintiff's property and water supply.



297. Defendants have caused great harm to Plaintiff, acting with implied malice and an outrageously conscious disregard for Plaintiff's rights and safety, such that the imposition of punitive damages is warranted.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff demands judgment against Defendants, and each of them, jointly and severally, and request the following relief from the Court:

- a. compensatory damages according to proof including, but not limited to:
  - i. costs and expenses related to the past, present, and future investigation, sampling, testing, and assessment of the extent to which Plaintiff's property and water system have been contaminated with PFAS;
  - ii. costs and expenses related to past, present, and future treatment and remediation of the PFAS contamination impacting Plaintiff's property and water system; and
  - iii. costs and expenses related to past, present, and future installation and maintenance of filtration systems to assess and evaluate PFAS contamination impacting Plaintiff's property and water system;
- b. a declaration that Defendants acted with negligence, gross negligence, and/or willful, wanton, and careless disregard for the health, safety of Plaintiff;
- c. an order for an award of attorney fees and costs, as provided by law;
- d. pre-judgment and post-judgment interest as provided by law;
- e. an order barring the transfer of DuPont's liabilities for the claims brought in this Complaint;
- f. an award of punitive damages in an amount sufficient to deter Defendants' similar wrongful conduct in the future;
- g. an award of consequential damages; and
- h. an order for all such other relief the Court deems just and proper.

**DEMAND FOR JURY TRIAL**

Plaintiff, Orleans Southwest Union Elementary School District, demands a trial by jury of all issues so triable as a matter of right.

Dated: New York, New York  
June 1, 2023

Respectfully submitted,

**NAPOLI SHKOLNIK**

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